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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,460	07/26/2001	Tatsuya Kawahara	77661/55	5110
23838	7590	10/30/2003	EXAMINER	
KENYON & KENYON 1500 K STREET, N.W., SUITE 700 WASHINGTON, DC 20005			CANTELMO, GREGG	
			ART UNIT	PAPER NUMBER
			1745	
DATE MAILED: 10/30/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/912,460

Applicant(s)

KAWAHARA, TATSUYA

Examiner

Gregg Cantelmo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 4-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. In response to the amendment received September 25, 2003:
 - a. Claims 1-9 are pending with claim 10 having been cancelled;
 - b. The claim objection has been overcome in light of the cancellation of claim 10;
 - c. The prior art rejections of record are withdrawn in light of the amendment to claim 1. In particular the direction of the oxidant flow to be within the oxidant passage as recited in claim 1 to recirculate water in the oxidant passage further limits claim 1. In contrast, the oxidant gas flow of Bonville is along a peripheral flow path (not within the oxidant gas passage in the fuel cell) for recycling air. Water generated in the oxidant gas as flow through the fuel cell is reused via components which are external to the oxidant passage formed in the fuel cell.

Priority

2. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 and 8-9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. patent.No. 6,566,002 (Yoshimoto).

This rejection is made in light of the amendment to claim 1. Claim 1 having been further defined by the amendment as discussed in item 1c above, permitting finality of this office action.

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Fig. 2

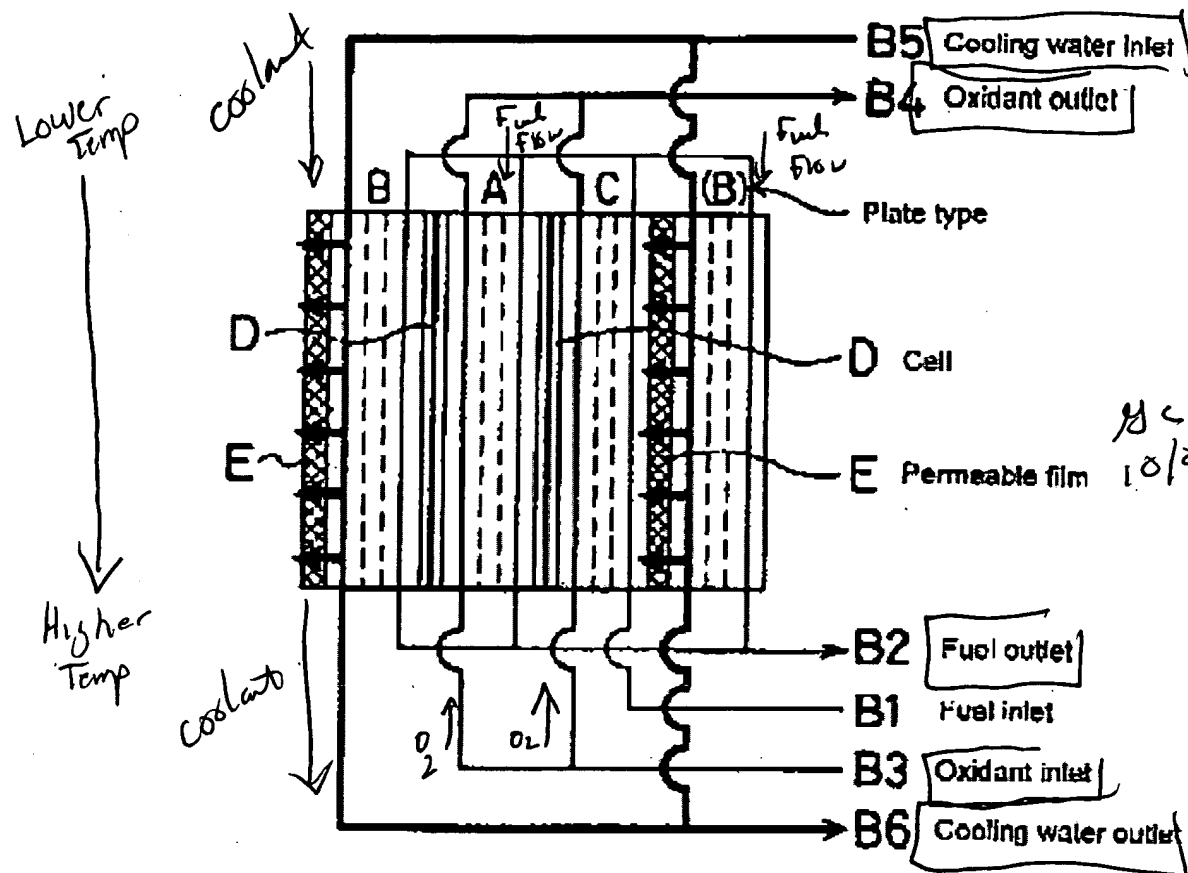


Fig. 2 above discloses a fuel cell including a high temperature portion and a low temperature portion in a cell plane comprising: an oxidant passage B3 formed in the fuel cell wherein an oxidant gas flow is directed within the oxidant passage from the high temperature portion to the low temperature portion of the fuel cell (marked up Fig. 2 as applied to claim 1).

The low temperature portion is located at a higher position than the high-temperature portion (marked up Fig. 2 as applied to claim 2).

Multiple fuel gas passages are formed in the fuel cell with the fuel gas flow being directed both from the low-temperature portion to the high-temperature portion at the initial introduction of the fuel to the fuel cell and then back through the fuel cell from the high-temperature portion to the low temperature portion. This is evident from the fact that both the fuel inlet and outlet exist on the same end of the stack and thus the fuel is directed in a return path as shown in Fig. 2 (as applied to claim 8).

Along the return path the fuel inlet back into the cell is directed from the low-temperature portion to the high-temperature portion and the return path outlet is lower than the return path inlet (marked up Fig. 2 as applied to claim 9).

Yoshimoto does not explicitly disclose of oxidant gas flow directed from the high-temperature portion to the low-temperature portion so that water produced during operation of the fuel cell will recirculate in the oxidant passage (claim 1) or that the flow of the oxidant is reverse to the direction of gravity (claim 3).

Although Yoshimoto does not explicitly recite this language, the arrangement of the fuel cell and channels and further of the direction of the oxidant relative to the coolant (being counter-current as embodied in the instant application) provides evidence of a reasonable expectation that the prior art arrangement will cause at least a portion of water produced during operation of the fuel cell to recirculate in the oxidant passage and thereby humidify the oxidant gas in the oxidant gas channel (Fig. 2 as applied to claim 1).

The arrangement of claim 3 shows a stack arrangement wherein the gas channels are vertically arranged. Therefore the flow of gases is shown to either be

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upward in a vertical direction (oxidant) or downward in a vertical direction (coolant). The arrangement shown therein teaches of a vertical configuration, which as a result, would cause the oxidant flow to obviously, if not, inherently be flown up from the bottom of the stack and therefore in opposition to the direction of gravity (Fig. 2 as applied to claim 2).

Response to Arguments

6. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

With respect to the newly applied rejection, it is considered that the arrangement of Yoshimoto as shown in Fig. 2 for example, has the same structural arrangement and claimed direction flow of oxidant, fuel and coolant to provide the same functions as recited in the rejected claims, absent clear evidence to the contrary.

While intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). See MPEP § 2114, incorporated herein.

Allowable Subject Matter

7. Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claims 4-7, none of the prior art of record appear to teach, suggest or render obvious the fuel cell of either of claims 4 or 5 wherein the oxidant passage includes an upstream and downstream portions (claims 4 and 5), said upstream portion being provided with a hydrophilicity treated portion (claim 4), said downstream portion being provided with a hydrophobicity treated portion (claims 4 and 5) and further comprising a water drop atomizing device disposed at a location upstream of an inlet of said oxidant passage (claim 5).

While Yoshimoto discloses the arrangement as recited in claim 1, and further has upstream and downstream portions in the oxidant passage, Yoshimoto fails to teach, suggest or render obvious said upstream portion being provided with a hydrophilicity treated portion (claim 4), said downstream portion being provided with a hydrophobicity treated portion (claims 4 and 5) and further comprising a water drop atomizing device disposed at a location upstream of an inlet of said oxidant passage (claim 5).

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JP 11-097041-A discloses providing hydrophobic and hydrophilic portions in a polymer electrolyte membrane, but these layers are in the anode flow channels wherein fuel and not oxidant is flown. Furthermore JP 11-097041 does not teach or suggest said upstream portion being provided with a hydrophilicity treated portion (claim 4), said downstream portion being provided with a hydrophobicity treated portion (claims 4 and 5) and further comprising a water drop atomizing device disposed at a location upstream of an inlet of said oxidant passage (claim 5).

There is no teaching or suggestion in the prior art of record to arrive at the arrangements of claims 4-7 and therefore claims 4-7 are deemed allowable over the prior art of record.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (703) 305-0635. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (703) 308-2383. Note that these telephone numbers will change around January 1, 2004. At such time the examiners new telephone number will be (571) 272-1283 and the examiner's supervisors number will be (571) 272-1292. FAX communications should be sent to FAX number: (703) 872-9306. FAXES received after 4 p.m. will not be processed until the following business day. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gregg Cantelmo
Patent Examiner
Art Unit 1745

gc


October 28, 2003